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MEETING MINUTES

TO Distribution **DATE** May 22, 1995

FROM Phil Nixon PN **DOCUMENT #** SP307 052295 02

PROJECT OU4 IM/IRA

SUBJECT Durability of the Low Permeability Layer

ATTENDANCE

Tim Kramer, EG&G
George Timinskas, EG&G
Sandy Stenseng
Dan Creek
Mike Glade
Phil Nixon

DISTRIBUTION

Andy Ledford, EG&G
M Matthews, EG&G,(2)
J Haasbeek, ERM
A MacGregor, ERM
W Edmonson
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R Wilkinson
Central Files

George Timinskas reported that he had spoken with D Myers, G Gee, and H Freeman from the Hanford engineered barrier research team on the specific topic of asphalt longevity Mr Timinskas was informed that the asphaltic artifacts tested at Hanford had a very low rate of degradation (approximately 2%) based on oxidation The Hanford researchers explained to Mr Timinskas that the funding for the Hanford engineered barrier program had been cut prior to performing long-term aging simulation tests on the liquid applied asphalt used as the low-permeability layer Therefore, the Hanford team is not able to predict the durability of the asphaltic materials

Mr Timinskas stated that he had talked with asphalt chemists that he knew from experience at the Nevada Test Site Mr Timinskas learned that the chemistry of natural and human-made asphalt is very similar However, the asphaltines in human-made asphalts are more volatile than those found in natural asphaltic materials Therefore the degradation rate of human-made asphalt is higher than that of natural asphalt (approximately 10%) There is uncertainty with respect to whether the human made asphaltic materials will endure the 1,000-year period of performance

It was discussed that natural cold-applied asphalts would likely have a superior performance than hot-mixed human-made asphaltic materials Trinidad Lake asphalts are commercially available natural asphaltic materials which may be a substitute for the materials which are currently specified for the OU4 engineered cover Parsons ES will try to find out if there is any long-term or accelerated aging tests on the Trinidad Lake materials

George Timinskas noted that there may be some improvements that could be made to hot-mix human-made materials such as

1 Supercompact the hot mix material to achieve zero void space, and
2 Increase the asphalt component

Parsons ES will contact Deerey Oil to investigate the components of the asphalt membrane material, and to see if it has been longevity tested

It was discussed that the asphalt materials could be sealed from above and below by a top coat to reduce the exposure of the low-permeability materials to oxidizing environments

Mr Timinskas recommended that asphalt samples be obtained and subjected to accelerated age testing The samples should come from both natural- and man-made asphaltic materials Parsons ES will investigate obtaining samples and identifying test procedures The conduct of a test is out of the current Parsons ES scope of work

It was discussed that if asphaltic materials could not be shown to provide the long-term durability, then a substitute or additional low-permeability material may be needed It was discussed that HDPE materials should be considered as they are chemically inert and meet the permeability requirements

The group agreed to perform an investigation with respect to the asphalt longevity/durability issue to be in a position to make a technically defensible decision If a change needs to be made, then EG&G/Parsons ES will brief the DOE prior to discussions with the regulatory agencies Any change will be made to the design package between the 90% and the final submittal since the 90% design is due to EG&G in three weeks